

SERIAL NO. \_\_\_\_\_  
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PATENT APPLICATION  
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### ABSTRACT

#### CATALYST FOR AROMATIZATION OF ALKANES, PROCESS OF MAKING AND USING THEREOF

A catalyst, a process for making the catalyst and a process for using the catalyst in aromatization of alkanes to aromatics, specifically, aromatization of alkanes having two to six carbon atoms per molecule, such as propane, to aromatics, such as benzene, toluene and xylene. The catalyst is an aluminum-silicon-germanium zeolite on which platinum has been deposited. Germanium is in the framework of the crystalline zeolite. Platinum is deposited on the zeolite. The catalyst may be supported on magnesia, alumina, titania, zirconia, thorina, silica, boria or mixtures thereof. The catalyst may contain a sulfur compound on the surface of the catalyst. The sulfur compound may be added to the catalyst in a pretreatment process or introduced with the hydrocarbon feed to contact the catalyst during the aromatization process. Generally, the catalyst may be of the formula  $M[(SiO_2)(XO_2)_x(YO_2)_y]Z^{+}_{y/n}$  where M is a noble metal such as platinum or gold, X is titanium, germanium, tin or another tetravalent element, Y is boron, aluminum, gallium, indium, tellurium or another trivalent element, Z is a cation with a valence of n such as  $H^+$ ,  $Na^+$ ,  $K^+$ ,  $Rb^+$ ,  $Cs^+$ ,  $Ca^{2+}$ ,  $Mg^{2+}$ ,  $Sr^{2+}$  or  $Ba^{2+}$ , x varies from 0-0.15 and y is 0-0.125. An example catalyst would be represented as  $[H^+Pt][Si_{91}Ge_4Al_1O_{192}]-MFI$ .